UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,013	09/15/2003	Paul S. Diefenbaugh	42P17653	2750

8791   7590   05/16/2007

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ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
05/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-26* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments with respect to claims 1 – 8 and 10 - 26 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

4.   Claim 1 – 8 and 10 – 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Nenonen (US 6,148,103) in view of Helms (US 5,760,760).

        Re claim 1, Nenonen teaches an apparatus comprising: a set of registers <u>where</u>

<u>each register has a</u> corresponding computed brightness value to store data indicating a

number of pixels of an image having respective computed brightness values [Col. 1,

lines 15 – 16; "A histogram is the distribution of the <u>brightness values</u> of a picture, and

<u>the number</u> of the brightness values are grouped into classes/each register." See fig. 1.

The histogram is stored in "42, memory" (Fig. 5). It is inherent that the brightness

values are stored in a set of registers in order to be grouped into classes in

memory/registers.] each register having an associated saturation threshold value (Col.

2, lines 1 – 5; "<u>a maximum amplification limit</u>/threshold that must not be surpassed by

the histogram peaks.");

and an image brightness agent (Col. 7, lines 29 – 34; "<u>The system</u> according to

the invention can be realized in many different ways, for example by <u>means</u> of a custom

designed application specific <u>integrated circuit</u> or in a <u>programm</u>ed fashion.")

communicatively coupled with the set of registers to determine whether a register is

saturated and, <u>and for each register that is saturated</u> to redistribute computed

brightness values to <u>a closest</u> non-saturated registers (Abstract, lines 10 – 15; "there

are cut off all values surpassing said limit/threshold value, which are then redistributed

in the histogram, to classes nearest/closest register to the class under

observation/saturated register.):

But does not expressly disclose adjusting image brightness and corresponding

backlight intensity based on an ambient light level.

However, Helms teaches an apparatus wherein a look-up table/image brightness

is modified based on the input ambient light value/brightness value, and the backlight

that is modified based on the modification of the lookup table (Helms: Col. 3, line 60 –

Col 4, line 5).

Therefore, taking the combined teachings of Nenonen and Helms, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of modifying a look-up table backlight based on the input ambient light as taught by Helms into the apparatus as taught by Nenonen to obtain an apparatus with a look-up table that contains certain computed brightness values which quickly and accurately modifies the brightness and backlight of an LCD based on the ambient lighting conditions of the environment in which the LCD is being operated. (Helms: Abstract).

Re claim 2, the combined teachings of Nenonen and Helms, as a whole, teach the apparatus of claim 1, but fail to expressly teach the color look-up table that modifies based on the computed brightness values.

However, Helms further teaches a look-up table that modifies based on the input ambient light value/brightness value. (Helms: Col. 3, lines 60 – 65).

Therefore, taking the combined teachings of Nenonen and Helms, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the look-up table as taught by Helms into the apparatus of claim 1 as taught by Nenonen to obtain an apparatus with a look-up table that contains certain computed brightness values which quickly and accurately modifies the brightness of an LCD based on the ambient lighting conditions of the environment in which the LCD is being operated. (Helms: Abstract).

Re claim 3, the combined teaching of Nenonen and Helms teach the apparatus

of claim 2 wherein the registers store brightness histogram values (Nenonen: Col. 1,

lines 15 – 16; "A histogram is the distribution of the brightness values of a picture, and

the number of the brightness values are grouped into classes." The histogram is stored

in "42, memory" (Fig. 5). It is inherent that the brightness values are stored in a set of

registers in order to be grouped into classes in memory/registers.)

Re claim 4, the combined teachings of Nenonen and Helms teach the apparatus

of claim 2, but the teachings as discussed in claim 2 fail to further describe the

apparatus comprising a backlight control agent communicatively coupled with the image

brightness agent, the backlight control agent to modify backlight brightness based on

modifications to the color look-up table.

However, Helms further teaches an apparatus wherein the backlight is modified

based on the modification of the lookup table (Helms: Col. 3, line 60 – Col 4, line 5. As

for the backlight control agent, the means for controlling or modifying is required to

modify the backlight.).

Therefore, taking the combined teachings of Nenonen and Helms, as a whole, it

would have been obvious to a person having ordinary skill in the art to incorporate the

backlight brightness modification as taught by Helms into the apparatus of claim 2 as

taught by Nenonen and Helms, as a whole, to obtain an apparatus with a look-up table

that contains certain computed brightness values which quickly and accurately modifies

the brightness of an LCD based on the ambient lighting conditions of the environment in which the LCD is being operated. (Helms: Abstract).

Re claim 5, the combined teachings of Nenonen and Helms teach the apparatus of claim 1, wherein one or more of the saturation threshold values (Nenonen: "Cut-out values," Col. 2, line 5) comprises a largest number (Nenonen: "peak values," Col. 2, line 3) to be stored by the associated register.

Re claim 6, the combined teachings of Nenonen and Helms teach the apparatus of claim 1, but fails to explicitly teach the saturation threshold values comprising number less than a largest number to be stored by the associated register.

However, Nenonen teaches moving the values that are above the threshold value, which suggests that the threshold value should be equal to or less than the largest number to be stored.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the saturation threshold values comprising number less than an largest number to be stored by the associated register to optimally distribute the values among registers.

Re claim 7, the combined teachings of Nenonen Helms teach the apparatus of claim 1 wherein the image brightness agent comprises a processor (Nenonen: Col. 7, lines 29 – 33; "The system according to the invention can be realized in many different

ways, for example by means of a digital signal processor.") executing sequences of

instructions (Fig. 3).

Re claim 8, the combined teachings of Nenonen and Helms teach the apparatus

of claim 1 wherein the image brightness agent comprises control circuitry (Nenonen:

Col. 7, lines 29 – 33; "by means of a custom designed application specific integrated

circuit.") communicatively coupled with the set of registers.

Re claim 10, the combined teachings of Nenonen and Helms teaches the

apparatus of claim 1, but fails to further described the apparatus comprising an ambient

light sensor coupled with the image brightness agent to generate an indication of

ambient light level.

However, Helms further teaches an apparatus wherein a photodetector is located

proximate the front of the LCD to generate brightness control circuitry signal indicative

of ambient lighting conditions (Abstract).

Therefore, taking the combined teachings of Nenonen and Helms, as a whole, it

would have been obvious to a person having ordinary skill in the art to incorporate the

photodetector as taught by Helms into the apparatus of claim 9 as taught by Nenonen

and Helms, as a whole, to obtain an apparatus with computed brightness values which

automatically adjusts the brightness of an LCD based on the ambient lighting conditions

of the environment, where the LCD is being operated, by modifying the backlight

brightness according to the look-up table to increase battery run-time. (Helms: Abstract, Col. 2, lines 39 - 42).

Re claim 11, the combined teachings of Nenonen and Helms teach the apparatus of claim 1, but fail to disclose the image brightness agent that modifies a color look-up table based on the indication of ambient light level.

However, Helms further teaches an apparatus wherein a color look-up table is modified based on the indication of ambient light level (Helms: Col. 3, lines 51 – 65).

Therefore, taking the combined teachings of Nenonen and Helms, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the photodetector as taught by Helms into the apparatus of claim 9 as taught by Nenonen and Helms, as a whole, to obtain an apparatus with a photodetector that computes brightness values to automatically adjust the brightness of an LCD based on the ambient lighting conditions of the environment, where the LCD is being operated, to modify the backlight brightness according to the look-up table to increase battery run-time. (Helms: Abstract, Col. 2, lines 39 - 42).

The limitations of claim 12 are substantially similar to the limitations of claim 4. Therefore it has been analyzed and rejected similar to the rejection of claim 4.

The limitations of claim 13 are substantially similar to the limitations of claim 1. Therefore it has been analyzed and rejected similar to the rejection of claim 1. Claim 13 is a corresponding method claim to the apparatus claim 1.

The limitations of claim 14 are substantially similar to the limitations of claim 2. Therefore it has been analyzed and rejected similar to the rejection of claim 2.

The limitations of claim 15 are substantially similar to the limitations of claim 4. Therefore it has been analyzed and rejected similar to the rejection of claim 4.

The limitations of claim 16 are substantially similar to the limitations of claim 3. Therefore it has been analyzed and rejected similar to the rejection of claim 3.

The limitations of claim 17 are substantially similar to the limitations of claim 5. Therefore it has been analyzed and rejected similar to the rejection of claim 5.

The limitations of claim 18 are substantially similar to the limitations of claim 6. Therefore it has been analyzed and rejected similar to the rejection of claim 6.

The limitations of claim 19 are substantially similar to the limitations of claims 10 - 12. Therefore it has been analyzed and rejected similar to the rejection of claims 10 – 12.

Re claim 20, Nenonen teaches an article comprising a machine-readable medium having stored thereon instruction that, when executed by one or more processors, cause the one or more processors (Col. 7, lines 29 – 33; "The system according to the invention can be realized in many different ways, for example by means of a custom designed application specific integrated circuit or a control program of a digital signal process.) to: store, in a plurality of registers, an indication of a number of pixels in an image having a computed brightness value corresponding to the respective registers; redistribute a subset of computed brightness values corresponding to one or more registers if the computed brightness value for the register exceeds a threshold value (See rejection to claim 1).

But does not expressly disclose adjusting image brightness and corresponding backlight intensity based on an ambient light level.

However, Helms teaches an apparatus wherein a look-up table/image brightness is modified based on the input ambient light value/brightness value, and the backlight that is modified based on the modification of the lookup table (Helms: Col. 3, line 60 – Col 4, line 5).

Therefore, taking the combined teachings of Nenonen and Helms, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of modifying a look-up table backlight based on the input ambient light as taught by Helms into the apparatus as taught by Nenonen to obtain an apparatus with a look-up table that contains certain computed brightness values which quickly and accurately

modifies the brightness and backlight of an LCD based on the ambient lighting

conditions of the environment in which the LCD is being operated. (Helms: Abstract).

The limitations of claim 21 are substantially similar to the limitations of claim 2.

Therefore it has been analyzed and rejected similar to the rejection of claim 2.

The limitations of claim 22 are substantially similar to the limitations of claim 4.

Therefore it has been analyzed and rejected similar to the rejection of claim 4.

The limitations of claim 23 are substantially similar to the limitations of claim 3.

Therefore it has been analyzed and rejected similar to the rejection of claim 3.

The limitations of claim 24 are substantially similar to the limitations of claim 5.

Therefore it has been analyzed and rejected similar to the rejection of claim 5.

The limitations of claim 25 are substantially similar to the limitations of claim 5.

Therefore it has been analyzed and rejected similar to the rejection of claim 5.

The limitations of claim 26 are substantially similar to the limitations of claim 10 -

12. Therefore it has been analyzed and rejected similar to the rejection of claim 10 - 12.

Conclusion

5.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Yong Sim whose telephone number is (571) 270-1189.

The examiner can normally be reached on Monday - Friday (Alternate Fridays off) 7:30-

5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YHS
4/3/2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER